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BULLETIN

OF

LAFAYETTE COLLEGE

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BULLETIN OF

LAFAYETTE COLLEGE

Revised Announcement of Courses and Schedules for the year 1915–1916

EASTON, PENNSYLVANIA
AUGUST, 1915

CALENDAR

1915.

Sept. 13—Monday, 9 A.M. to 12 M., 2 P.M. to 4 P.M., Registration for entrance.

Sept. 14–15—Tuesday, Wednesday, 9 A.M., Examinations for admission. Re-examinations, three upper classes.

Sept. 16—Thursday, 9.50 A.M., 84th College year begins.

Sept. 30—Thursday, 11.30 A.M., Meeting of the Board of Trustees.

Oct. 19—Tuesday, Inauguration Banquet.

Oct. 20—Wednesday, Founders' Day. Inauguration of the President of the College.

Nov. 24—Wednesday, 12 M., to November 29, Monday, 9.50 A.M., Thanksgiving recess.

Dec. 22—Wednesday, 12 M., Christmas recess begins.

1916.

Jan. 6—Thursday, 9.50 A.M., Christmas recess ends.

Feb. 2—Wednesday, 12 M., First term ends.

Feb. 3—Thursday, 11.30 A.M., Stated Meeting of the Board of Trustees.

Feb. 3–6—Thursday–Sunday, Junior Week recess.

Feb. 7—Monday, 9.50 A.M., Second term begins.

Feb. 22—Tuesday, Washington's Birthday. Holiday.

Feb. 24—Thursday, Day of Prayer for Colleges. Service at 11 A.M.

Apr. 19—Wednesday, 12 M., Easter vacation begins.

Apr. 27—Thursday, 9.50 A.M., Easter vacation ends.

May 4—Thursday, 11.30 A.M., Stated Meeting of the Board of Trustees.

May 30—Tuesday, Memorial Day. Holiday.

June 3—Saturday, Senior examinations end.

June 10—Saturday, Examinations of lower classes end.

June 11—Sunday, 10.30 A.M., Baccalaureate Sermon; 8 P.M., Sermon before Brainerd Society.

June 12—Monday, 11.30 A.M., Stated Meeting of the Board of Trustees. 2 P.M., Senior Class Day exercises.

June 13—Tuesday, Alumni Day.

June 14—Wednesday, 9.45 A.M., Commencement.

FACULTY

JOHN HENRY MACCRACKEN, PH.D., LL.D.,
President.
(John I. Blair Foundation.)

REV. ROBERT BARBER YOUNGMAN, A.M., PH.D.,
Emeritus Professor of the Greek Language and Literature.

WILLIAM BAXTER OWEN, A.M., PH.D., LITT.D.,
Professor of the Latin Language and Literature.

EDWARD HART, PH.D.,
Dean of the Pardee Scientific Department, Professor of Analytical Chemistry.
(William Adamson Professorship of Analytical Chemistry.)

JAMES MADISON PORTER, C.E.,
Professor of Civil Engineering.

FRANCIS A. MARCH, JR., A.M., PH.D.,
Professor of the English Language.
(Francis A. March Professorship.)

WILLIAM SHAFER HALL, C.E., E.M., M.S.,
Professor of Technical Mathematics.
(George W. Hollenback Professorship.)

EDGAR MOORE GREEN, A.M., M.D.,
Consulting Physician in the Department of Physical Training.

ALVIN DAVISON, A.M., PH.D.,
Professor of Biology.
(Jesse Chamberlain Professorship of Botany.)

FREDERICK BURRITT PECK, PH.D.,
Professor of Mineralogy and Geology.

CLARENCE MCCHEYNE GORDON, PH.D.,
Professor of Physics.

JAMES WADDELL TUPPER, PH.D.,
Professor of English Literature.

JAMES THERON ROOD, PH.D.,
Professor of Electrical Engineering.

WILLIAM THOMAS LYLE, C.E.,
Professor of Municipal Engineering.

EDWIN MOORE RANKIN, A.M., PH.D.,
Professor of Greek.

EDWIN OBERLIN FITCH, JR., M.S.,
Professor of Mechanical Engineering.

HENRY WYSOR, B.S.,
Professor of Metallurgy.

OTHO MCCARROLL GRAVES, B.S. in C.E.,
Professor of Graphics.

REV. SAMUEL ALBERT MARTIN, A.M., D.D.,
Professor of Mental and Moral Philosophy.
(James Renwick Hogg Professorship.)

CARL DANIEL FEHR, A.M.,
Professor of Modern Languages.

WILLIAM MACKEY SMITH, PH.D.,
Associate Professor of Mathematics and Registrar.

JAMES BRYANT HOPKINS, A.M.,
Assistant Professor of Romance Languages.

WILLIAM BENJAMIN MARQUARD, E.M.,
Assistant Professor of Mining Engineering.
(George B. Markle Professorship.)

ERNEST DEAN TANZER, E.E.,
Assistant Professor of Electrical Engineering.

ALBERT K. HECKEL, PH.D.,
Assistant Professor of History and Assistant Dean.

RAYMOND HENRY LACEY, A.M., PH.D.,
Assistant Professor of Latin.

William Trumbower Foster, Ph.B., M.S.,
Assistant Professor of Biology.

D. Arthur Hatch, E.M.,
Assistant Professor of Mathematics.

Harry Thomas Spengler, C.E.,
Assistant Professor of Surveying and Railroad Engineering.

V. Ray Jones, A.M.,
Assistant Professor of Modern Languages

Assistant Professor of Economics.

James Henry DeLong, B.S.,
Instructor in Chemistry.

William Huntington Kirkpatrick, A.B.,
Instructor in Municipal Law.

Harold Anson Bruce,
Director of Physical Training.

John Cawley, M.S.,
Instructor in Mathematics.

A. Henry Fretz, Ph.B., C.E.,
Instructor in Geology and Mineralogy.

Harold John Lockwood, E.E.,
Instructor in Physics.

Clifford Elliott Williams, B.S. in C.E.,
Instructor in Cement Engineering.

Arthur Dodd Snyder, A.B.,
Instructor in Mathematics.

Elbert Ross, B.S. in Chem.,
Instructor in Chemistry.

Charles Garfield Eichlin, A.B.,
Instructor in Physics.

HENRY CLINTON HUTCHINS, A.M.,
Instructor in English.

EDGAR COLBY KNOWLTON, A.M.,
Instructor in English.

CLINTON ELLICOTT PEARCE, B.S.,
Instructor in Mechanical Engineering.

WILLIAM WALLAESA,
Instructor in Foundry.

WILLIAM ASTON, A.B.,
Instructor in Latin and English.

JOHN PFROMM, B.S. in CHEM.,
Instructor in Chemistry.

FREDERICK HIRAM SPOTTS, A.B.,
Instructor in History and Mathematics.

ALBERT MORTON BIERSTADT, A.M.,
Instructor in English.

ROBERT VINCENT CRAM, A.M.,
Instructor in Greek.

Instructor in Romance Languages.

RALPH HENRY MOORE, B.S. (in C.E.),
Instructor in Graphics.

SAMUEL D. CARPENTER, M.E.,
Instructor in Machine Shop.

NEVIN CECIL MITMAN,
Instructor in Forge Work.

LUTHER A. FLOWERS,
Instructor in Pattern Making.

WILBUR A. BRYAN, Ph.B.,
Assistant in Physics.

COLLEGE OFFICERS

WILLIAM S. HALL, C.E., E.M., M.S.,
Clerk of the Faculty.

ALBERT K. HECKEL, PH.D.,
Assistant Dean.

WILLIAM MACKAY SMITH, PH.D.,
Registrar.

REV. JOHN F. STONECIPHER, D.D.,
Librarian.

EDWARD HART, PH.D.,
Dean of the Pardee Scientific Department,
Curator of Gayley Hall, and Librarian of the Henry W. Oliver Library.

ALBERT MOORE LANE, PH.B.,
Bursar and Superintendent of Grounds and Buildings.

REV. MAURICE A. FILSON, A.M.,
Assistant in Library.

WILLIAM T. FOSTER, M.S.,
Curator of the Biological Museum.

JOHN EDGAR FRETZ, A.M., M.D.,
Physician.

STANDING COMMITTEES OF THE FACULTY

Organization and By-Laws.
Professors PORTER, MARCH, MARTIN, ROOD, HALL, GORDON, GRAVES.

Terms and Vacations.
Professors DAVISON, PECK, TUPPER, LYLE, RANKIN, GRAVES.

Curriculum.
Professors MACCRACKEN, OWEN, HART, PORTER, TUPPER, FITCH.

Schedule.
Professors SMITH, HALL, GRAVES.

Accredited Schools and Admission.
Professors HECKEL, FEHR, SMITH.

Attendance and Standing.
Professors HALL, FITCH, SMITH.

Discipline.
Professors HECKEL, LYLE, SMITH.

Student Organizations.
Professors GRAVES, PECK, WYSOR, HECKEL, HATCH.

Publications.
Professors TUPPER, HOPKINS.

Athletics.
Professors MARCH, PORTER, MARQUARD, FITCH, GORDON, BRUCE.

Apparatus and Equipment.
Professors HART, PORTER, DAVISON, GORDON, FITCH.

Library.
Professors STONECIPHER, OWEN, MARCH.

Public Lectures and Social Life.
Professors TUPPER, MARTIN, RANKIN, ROOD, GRAVES.

GENERAL ANNOUNCEMENTS

CLASSIFICATION OF STUDENTS

Students are classified upon entrance in five divisions according to the subjects presented for admission and the degrees which they seek, as follows:

Division I. Candidates for the Degree of Bachelor of Arts.

Division II. Candidates for the Degree of Bachelor of Philosophy.

Division III. Candidates for the Degrees of Bachelor of Science and Bachelor of Science in Chemistry.

Division IV. Candidates for the Degrees of Bachelor of Science in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining Engineering.

Division V. Students taking the two-year pre-medical course.

REQUIREMENTS FOR ADMISSION

Students who expect to enter Lafayette College upon graduation from an accredited preparatory school or a four-year high school should apply by mail to the Registrar for a blank "Entrance Certificate," which will be sent upon request. This certificate, when properly filled out and signed by the principal of the school, should be filed, either by mail or in person, with the Registrar and the matriculation fee of ten dollars paid. The Registrar will present the certificate to the faculty's Committee on Admission of Students, and will advise the student whether the certificate meets the requirements for admission, or if deficient, in what subjects the student must make further preparation. It is expected that every applicant for admission shall have successfully completed at least the equivalent of a four-year high school course, averaging sixteen hours a week through four years, and shall be a young man of good moral character.

Students who have not attended an accredited school, or whose preparation has been irregular or deficient in certain subjects, are required to show that they are qualified in the subjects required for admission by passing the examinations conducted by Lafayette College in September or the examinations conducted by the College Entrance Board in June.

Students entering Lafayette from other colleges, are required to present an official record of their scholastic work and also a certificate of honorable dismissal.

The admission requirements are defined in terms of units, a unit representing one-quarter year of high school work in one subject. The requirement for all divisions of the Freshman class is fourteen and one-half units. The subjects required for the various divisions are given below.

For admission to Division I as a candidate for the Degree of Bachelor of Arts:

Subject	Units
English	3
History	1
Mathematics	$2^1/_2$
Latin or Greek	3
Latin, Greek, or Modern Languages	4
Elective	1
Total	$14^1/_2$

For admission to Division II as a candidate for the Degree of Bachelor of Philosophy:

English	3
History	1
Mathematics	$2^1/_2$
Foreign Language	3
Other Foreign Languages	3
Science	1
Elective	1
	$14^1/_2$

For admission to Division III as a candidate for the Degree of Bachelor of Science or to Division V for the pre-medical course:

English	3
History	1
Mathematics	2½
Foreign Language	3
Foreign Language or Mathematics	1
Science	1
Elective	3
	14½

For admission to Division IV as a candidate for a degree in Engineering:

English	3
History	1
Mathematics	4
Modern Foreign Language	2
Physics or Chemistry	1
Elective	3½
	14½

Any of the subjects defined below may be offered as electives.

DEFINITION OF REQUIREMENTS

For more detailed definitions reference should be made to the College Catalogue.

English.................................... 3 units

1. A command of correct and clear English, spoken and written.

2. A careful reading knowledge of works elected from the prescribed groups—classics in translation, Shakespeare, prose fiction, essays and biography, and poetry.

3. An exact textual knowledge of works elected from the prescribed groups—drama, poetry, oratory, and essays.

History

English History	1 unit
American History	1 unit
Ancient History	$^{1}/_{2}$ or 1 unit
Mediaeval History	$^{1}/_{2}$ or 1 unit

Mathematics

Elementary Algebra including Quadratics	$1^{1}/_{2}$ units
Advanced Algebra	$^{1}/_{2}$ unit
Plane Geometry	1 unit
Solid Geometry	$^{1}/_{2}$ unit
Trigonometry	$^{1}/_{2}$ unit

Latin Elementary.............................. 3 units

(*a*) Grammar.

(*b*) Caesar's Commentaries, four books, or a portion in Nepos, Cicero's *de Senectute*, or *de Amicitia*.

(*c*) Cicero, Seven Orations.

(*d*) Prose Composition.

Latin, Advanced.............................. 1 unit

(*a*) Virgil, *Aeneid*, six books, *Bucolics*.

(*b*) Prose Composition.

Greek, Elementary.............................. 2 units

(*a*) Grammar.

(*b*) Xenophon, *Anabasis*, four books or equivalent in the *Cyropaedia*.

(*c*) Prose Composition.

Greek, Advanced............................ 1 unit

(*a*) Homer, *Iliad*, three books, or *Odyssey*, three books.
(*b*) Prose Composition.

French, Elementary........................... 2 units

(*a*) Grammar. Two-year course.
(*b*) Approved Readings. Two-year course.

French, Advanced............................ 1 unit

(*a*) Grammar and Conversation.
(*b*) Advanced Readings.

German, Elementary.......................... 2 units

(*a*) Grammar. Two-year course.
(*b*) Approved Readings. Two-year course.

German, Advanced............................ 1 unit

(*a*) Grammar and Conversation.
(*b*) Advanced Readings.

Spanish, Elementary.......................... 2 units

(*a*) Grammar. Two-year course.
(*b*) Approved Readings. Two-year course.

Physics.................................... 1 unit

Chemistry.................................. 1 unit

Zoölogy and Botany.......................... 1 unit

Physical Geography.......................... 1 unit

The work in each science should consist of recitations and of practical experiments performed in a laboratory equipped with sufficient apparatus. A neatly kept notebook with experiments recorded in the student's own words is required.

Drawing.................................. 1 unit

Either Freehand Drawing (1/2 unit) or Projection Drawing (1/2 unit) or both.

ARRANGEMENT OF COURSES

FRESHMAN AND SOPHOMORE YEARS

The work of the Freshman and Sophomore years is largely required. Greek is required of candidates for the A.B. degree. Those entering with Greek must take it for one year; those beginning Greek in college, for two years. Mathematics is required of candidates for the B.S. degree or the degrees in Engineering throughout the two years. Latin and a Modern Language are required of candidates for the degree of Ph.B., throughout the two years. In the Sophomore year, an opportunity is given to elect courses in English, Science, History, Psychology or Government. Bible is required one hour a week throughout the four years. Hygiene and Physical Training is required four times a week of all Freshmen. The curriculum of each Division is shown in the following tables. The course numbers refer to the courses as listed in the announcements of the Departments following the tables (see pages 29–51).

The tables show the number of hours per week spent in the classroom in the laboratory, and the number of hours credit allowed in each course toward a degree.

CURRICULUM OF STUDIES, FRESHMAN AND SOPHOMORE YEARS

I—LEADING TO THE DEGREE OF BACHELOR OF ARTS

Freshman Year

First Term					Second Term				
		Hours per Week					Hours per Week		
No. of Course	Department	Class	Lab.	Credits	No. of Course	Department	Class	Lab.	Credits
1	English	3		3	2	English	3		3
1 or 3	Greek	3		3	2 or 4	Greek	3		3
1	Latin	3		3	2	Latin	3		3
1	Math.	3		3	2	History	3		3
1	Science	2	2	3	2	Math.	3		3
1	Bible	1		1	2	Bible	1		1
1	Hygiene and Phys. Train.		4	1	2	Phys. Train.		4	1
				17					17

Sophomore Year

		Hours per Week					Hours per Week		
No. of Course	Department	Class	Lab.	Credits	No. of Course	Department	Class	Lab.	Credits
1 or 3	French	9		9	2 or 4	French	9		9
1 or 3	German				2 or 4	German			
3 or 5	Greek[1]				4 or 6	Greek[1]			
3	Latin				4	Latin			
3	Physics	3	2	3	4	Physics	3	2	3
3	Bible	1		1	4	Bible	1		1
	Elective	3		3		Elective	3		3
				16					16

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[1] Required of students taking Greek 1, Freshman year.

II.—LEADING TO THE DEGREE OF BACHELOR OF PHILOSOPHY

Freshman Year

First Term | Second Term

No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab.	Credits			Class	Lab.	Credits
1	English	3		3	2	English	3		3
3	French or German	3		3	4	French or German	3		3
1	Latin	3		3	2	Latin	3		3
1	Math.	3		3	2	History	3		3
1	Science	2	2	3	2	Math.	3		3
1	Bible	1		1	2	Bible	1		1
1	Phys. Train. & Hyg.		4	1	2	Phys. Train. & Hyg.		4	1
				17					17
				Sophomore Year					
1 or 5	French or German	3		3	2 or 6	French or German	3		3
3	Latin	3		3	4	Latin	3		3
1	Physics	3	2	3	2	Physics	3	2	3
3	Bible	1		1	4	Bible	1		1
	Electives (2)	6		6		Electives (2)	6		6
				16					16

III A.—LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

Freshman Year

First Term | Second Term

No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab'y	Credits			Class	Lab'y	Credits
I	English	3		3	2	English	3		3
I or 3	French or German	3		3	2 or 4	French or German	3		3
I	Mathematics	3		3	2	Mathematics	3		3
I	Science	2	2	3	2	History or Science	3		3
I	Graphics		6	2	2	Graphics		6	2
I	Bible	I		I	2	Bible	I		I
	Phys. Training & Hyg.		4	I		Physical Training		4	I
3	French	3		3	4	French	3		3
I	German				2	German			
3	Mathematics				4	Mathematics			
	Science					Science			
				19					19

Sophomore Year

No. of course	Department	Class	Lab'y	Credits	No. of course	Department	Class	Lab'y	Credits
3 or 5	French or German	3		3	4 or 6	French or German[1]	3		3
5	Mathematics	3		3	6	Mathematics	3		3
I	Physics	3	4	3	2	Physics	3	4	3
3	Bible	I		I	4	Bible	I		I
	Electives	6		6		Electives (2)	6		6
				16					16

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[1] Students at the end of their Sophomore year must have had two years in each of two Modern Languages, including preparatory school work.

III B.—Leading to the Degree of Bachelor of Science in Chemistry

Freshman Year

First Term					Second Term				
No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab'y	Cred-its			Class	Lab'y	Cred-its
I	English	3		3	2	English	3		3
I or 3	French or German	3		3	2 or 4	French or German	3		3
I	Chemistry	I	4	3	2	Chemistry	I	4	3
I	Graphics			2	2	Graphics		6	2
3	Mathematics	6		6	4	Mathematics	4		4
I	Bible	I		I	2	Surveying	2		2
I	Physical Training and Hygiene		4	I	2	Bible	I		I
					2	Physical Training		4	I
				— 19					— 19

Sophomore Year

No. of course	Department	Class	Lab'y	Cred-its	No. of course	Department	Class	Lab'y	Cred-its
3	English	3		3	2	Chemistry	I	2	2
I	Chemistry	I	2	2	8	Mathematics	4		4
7	Mathematics	3		3	4	Physics	2	4	4
3	Physics	2	4	4		Elective			3
	Elective			3	2	Shop			2
I	Shop			2	4	Bible	I		I
3	Bible	I		I		Elec. from Group I or II	2 or 3		2 or 3
				— 18					— 18 or 19

IV A.—LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN CIVIL ENGINEERING

Freshman Year

First Term					Second Term				
No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab'y	Cred-its			Class	Lab'y	Cred-its
I	English	3		3	2	English	3		3
I or 3	French or German	3		3	2 or 4	French or German	3		3
I	Chemistry	I	4	3	2	Chemistry	I	4	3
I	Graphics		6	2	2	Graphics		6	2
3	Mathematics	6		6	4	Mathematics	4		4
I	Bible	I		I	2	Surveying			2
	Phys. Training & Hyg.		4	I	2	Bible	I		I
				—		Physical Training		4	I
				19					—
									19

Sophomore Year

No. of course	Department	Class	Lab'y	Cred-its	No. of course	Department	Class	Lab'y	Cred-its
3	English	3		3	8	Mathematics	4		4
7	Mathematics	3 or 4		3 or 4	4	Physics			4
3	Physics	4 or 3		4 or 3	4	Graphics	I	4	3
3	Graphics	2	2	3	4	Surveying			2
3	Surveying			2	2	Shop			2
I	Shop			2	4	Bible	I		I
3	Bible	I		I		Elec. from Group I or II	2 or 3		2 or 3
				—					—
				18					18
									or
									19

IV B.—LEADING TO THE DEGREES OF BACHELOR OF SCIENCE IN MECHANICAL AND ELECTRICAL ENGINEERING

Freshman Year

First Term					Second Term				
No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab'y	Cred-its			Class	Lab'y	Cred-its
I	English	3		3	2	English	3		3
I or 3	French or German	3		3	2 or 4	French or German	3		3
I	Chemistry	I	4	3	2	Chemistry	I	4	3
I	Graphics		6	2	2	Graphics		6	2
3	Mathematics	6		6	4	Mathematics	4		4
I	Bible	I		I	2	Surveying			2
	Phys. Training & Hyg.		4	I	2	Bible	I		I
				—		Physical Training		4	I
				19					—
									19

Sophomore Year

No. of course	Department	Class	Lab'y	Cred-its	No. of course	Department	Class	Lab'y	Cred-its
3	English	3		3	8	Mathematics	4		4
7	Mathematics	3 or 4		3	4	Physics			6
3	Physics	4 or 3		4	4	Graphics	I	4	3
3	Graphics	2	2	3	2	Shop			2
3	Chemistry			2	4	Bible			I
I	Shop			2		Elec. from Group I or II	2 or 3		2 or 3
3	Bible	I		I					—
				—					18
				18					or
									19

IV C.—Leading to the Degree of Bachelor of Science in Mining Engineering

Freshman Year

First Term					Second Term				
No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab'y	Credits			Class	Lab'y	Credits
1	English	3		3	2	English	3		3
1 or 3	French or German	3		3	2 or 4	French or German	3		3
1	Chemistry	1	4	3	2	Chemistry	1	4	3
1	Graphics		6	2	2	Graphics		6	2
3	Mathematics	6		6	4	Mathematics	4		4
1	Bible	1		1	2	Chemistry			2
	Phys. Training & Hyg.		4	1	2	Bible	1		1
				—		Physical Training		4	1
				19					—
									19

Sophomore Year

First Term					Second Term				
No. of course	Department	Class	Lab'y	Credits	No. of course	Department	Class	Lab'y	Credits
3	English	3		3	8	Mathematics	4		4
7	Mathematics	3 or 4		3	4	Chemistry			2
3	Physics	4 or 3		4	4	Physics			4
3	Graphics	2	2	3	4	Graphics	1	4	3
3	Chemistry			2	2	Shop			2
1	Shop			2	4	Bible	1		1
3	Bible	1		1		Elec. from Group I or II	2 or 3		2 or 3
				—					—
				18					18
									or
									19

V.—Leading to a Medical Course

Freshman Year

First Term					Second Term				
No. of course	Department	Hours per week			No. of course	Department	Hours per week		
		Class	Lab'y	Credits			Class	Lab'y	Credits
1	English	3		3	2	English	3		3
1 or 3	German	3		3	2 or 4	German	3		3
1	Chemistry	1	4	3	2	Biology			3
1	Physics			3	2	Chemistry	1	4	3
1	Mathematics	3		3	2	Physics			3
1	Biology	2	2	3	2	Mathematics	3		3
1	Bible	1		1	2	Bible	1		1
	Phys. Training & Hyg.		4	1		Physical Training		4	1
				20					20

Sophomore Year

No. of course	Department	Class	Lab'y	Credits	No. of course	Department	Class	Lab'y	Credits
3–5	Biology	2	8	6	4–6	Biology	2	8	6
	Chemistry			5		Chemistry			5
3	Bible	1		1	4	Bible	1		1
	English					English			
	French or German					French or German			
	Latin					Latin			
	History	6		6		History	6		6
	Government					Psychology			
	Mathematics					Mathematics			
	Physics					Physics			
	Municipal Sanitation	—							
				18					18

JUNIOR AND SENIOR YEARS

THE GROUP SYSTEM

The requirements for the Junior and Senior years are the same for all students in Divisions I, II and III. All the Departments offering courses in Divisions I, II and III in Arts and Pure Science are arranged in three groups as follows:

Group I: Language and Literature, including English.

Group II: History, Philosophy and Political Science.

Group III: Mathematics and Science.

At the end of Sophomore year each student in Divisions I, II and III must decide in which department he wishes to do the larger part of his advanced work. Each student in Division IV must decide whether to specialize in Civil, Electrical, Mechanical or Mining Engineering.

The department selected by the student in Divisions I–III will be known as his *Major Department.* The completion of three 3-hour year courses or the equivalent in that department will constitute a *Major.* Courses designated as preliminary courses cannot be counted as part of this requirement.

The student must also, at the same time, choose two other departments, one from each of the remaining groups, as his first and second Minor Departments. The completion of two 3-hour year courses or the equivalent in one department will constitute a *Minor.* Courses designated as preliminary courses in the department cannot be counted as part of this requirement.

Of the work of the Junior and Senior years, therefore, 6 hours one year and three hours the second year, or *vice versa,* all taken in one department will be required to complete the *Major,* and 3 hours throughout the two years in one department of a different group, and three hours throughout the two years in one department of the remaining group will be required to complete the two *Minors.* In addition to the fifteen hours thus required fifteen hours of electives must be completed in the two years in order to satisfy the requirements for the respective degrees. These electives may be selected from any courses open to Juniors and Seniors.

Bible one hour a week throughout the two years is required in addition of all students.

Students who Major in Chemistry must take Chem. 5–25 inclusive, during Junior and Senior years.

JUNIOR AND SENIOR CURRICULUM

Leading to the degrees of A.B., Ph.B., and B.S.

Junior Year		*Senior Year*	
Major, Group I, II, III	3, $4^1/_2$ or 6	Major Group	6, $4^1/_2$ or 3
Minor, Group II, III, I	3 or 6	Minor Group	3
Minor, Group III, I, II	3 or 6	Minor Group	3
Electives	6 or 3	Electives	3, 6, or 9
Bible	1	Bible	1
Total,	16		16

DEGREES WITH DISTINCTION

Opportunity is given for students whose majors are in certain departments to win a degree with distinction. An applicant for honors must announce his candidacy at the beginning of Junior Year. In order to be eligible to such candidacy he must have secured B or higher in the courses of the Freshman and Sophomore Years. He must satisfactorily complete the additional work required by his Major Department beyond that required for his Major, and at the end of the Senior Year must pass a comprehensive examination upon the work done in the Department. He may be required also to present a thesis.

JUNIOR AND SENIOR CURRICULA

Leading to the degree of Bachelor of Science in Civil Engineering, in Electrical Engineering, in Mechanical Engineering, in Mining Engineering.

The following tables show the courses of study offered in the Junior and Senior years to students seeking a degree in engineering.

A course leading to the degree of Bachelor of Science in Chemical Engineering will be open to Juniors in 1916.

CIVIL ENGINEERING

Junior

First Term					Second Term				
No.	Department	Hours per week			No.	Department	Hours per week		
		Class	Lab.	Cr.			Class	Lab.	Cr.
7	Civil Engineering	3		3	12	Civil Engineering	2		2
9	Civil Engineering	3		3	10	Civil Engineering	3		3
5	Civil Engineering	1	4	3	6	Civil Engineering	2	2	3
11	Civil Engineering	2		2	14	Civil Engineering	2		2
25	Civil Engineering		3	1	26	Civil Engineering		3	1
27	Civil Engineering		3	1	8–28	Civil Engineering	2		2
7	Geol. and Min.		4	2	8	Biology and Hygiene	1	4	3
5	Electrical Eng.	2		2	8	Geol. and Min.	2		2
9	Elec. Eng.		3	1	10	Bible	1		1
9	Bible	1		1					
	Total			19					19

Senior

No.	Department	Class	Lab.	Cr.	No.	Department	Class	Lab.	Cr.
17	Civil Engineering	2		2	18	Civil Engineering		4	2
19	Civil Engineering	2		2	20	Civil Engineering	1	2	2
21	Civil Engineering	2		2	30	Civil Engineering		3	1
13	Civil Engineering		6	2	22	Civil Engineering		2	1
15	Civil Engineering	3	6	6	16	Civil Engineering	3	6	6
9	Geol. & Min. (1915–16 only)	2		2	32	Civil Engineering		6	2
3	Economics	2		2		Elective	2		2
23	Civ. Eng. (after 1916)	1	2	2	6	Law	2		2
	Bible	1		1		Bible	1		1
				19					19

ELECTRICAL ENGINEERING

Junior Year (1915–16 only)

First Term					Second Term				
No.	Department	Hours per week			No.	Department	Hours per week		
		Class	Lab.	Cr.			Class	Lab.	Cr.
7	Civil Engineering	3		3	10	Civil Engineering	3		3
9	Civil Engineering	3		3	12	Electrical Engineering	2		2
25	Civil Engineering		3	1	6	Mechanical Engineering	3		3
7	Mechanical Engineering	3		3	6	Electrical Engineering	3		3
1	Electrical Engineering	3		3	22	Electrical Engineering	2		1
21	Electrical Engineering	2		1	4	Electrical Engineering		6	2
3	Electrical Engineering		6	2	2	Mechanical Engineering		6	2
1	Mechanical Engineering		6	2	10	Bible	1		1
9	Bible	1		1	26	Civil Engineering		3	1
				19					18

Senior Year (1915–16 only)

No.	Department	Class	Lab.	Cr.	No.	Department	Class	Lab.	Cr.
5	Mechanical Engineering	3		3	6	Mechanical Engineering	3		3
3	Economics	2		2		Elective	3		3
21	Electrical Engineering	2		1	6	Law	2		2
7	Electrical Engineering		6	2	22	Electrical Engineering	2		1
9	Electrical Engineering		4	2	8	Electrical Engineering		6	2
11	Electrical Engineering	4		4	24	Electrical Engineering		6	2
19	Civil Engineering	2		2	16	Electrical Engineering	2		2
15	Bible	1		1	12	Elec. Engineering*			
					18	Elec. Engineering*	2		2
				17	16	Bible	1		1
									18

*Elect one of two.

MECHANICAL ENGINEERING

Junior Year (1915–16 only)

First Term					Second Term				
No.	Department	Hours per week			No.	Department	Hours per week		
		Class	Lab.	Cr.			Class	Lab.	Cr.
7	Civil Engineering	3		3	10	Civil Engineering			3
9	Civil Engineering			3	26	Civil Engineering		3	1
25	Civil Engineering		3	1	6	Electrical Engineering	2	3	3
5	Electrical Engineering	2		2	10	Electrical Engineering		3	1
9	Electrical Engineering		3	1	6	Mechanical Engineering	3		3
5	Mechanical Engineering	3		3		Chem. & Metallurgy		6	2
7	Biology	1	4	3	14	Mechanical Engineering	1	4	3
1	Mechanical Engineering		6	2	2	Mechanical Engineering		6	2
9	Bible	1		1	10	Bible	1		1
				19					20

Senior Year (1915–16 only)

No.	Department	Class	Lab.	Cr.	No.	Department	Class	Lab.	Cr.
5	Mechanical Engineering	3		3	6	Mechanical Engineering	3		3
11	Electrical Engineering	3		3	16	Electrical Engineering	2		2
19	Civil Engineering	2		2		Elective	3		3
	Elective			2	12	Mechanical Engineering	2		2
15*a*	Civil Engineering	2		2	6	Law	2		2
3	Economics	2		2	10	Mechanical Engineering	1	4	3
9	Mechanical Engineering	1	4	3	16	Mechanical Engineering		6	2
15	Bible	1		1	16	Bible	1		1
				18					18

MINING ENGINEERING

Junior Year (1915–16 only)

First Term					Second Term				
No.	Department	Hours per week			No.	Department	Hours per week		
		Class	Lab.	Cr.			Class	Lab.	Cr.
7	Geology		4	2	8	Geology		4	2
7	Civil Engineering	3		3	10	Civil Engineering	3		3
9	Civil Engineering	3		3	26	Civil Engineering		3	1
25	Civil Engineering		3	1	6	Electrical Engineering	2	3	3
5	Electrical Engineering	2	3	3	8	Mechanical Engineering	3		2
7	Mechanical Engineering	3		3	12	Chem. & Metallurgy		6	2
11	Chem. & Metallurgy		6	2	14	Math. & Astronomy	2		2
9	Bible	1		1		Mining Engineering	2		2
				18	10	Bible	1		1
									18

Senior Year (1915–16 only)

First Term					Second Term				
No.	Department	Class	Lab.	Cr.	No.	Department	Class	Lab.	Cr.
19	Civil Engineering	2		2	12–14	Geology	2	4	4
9–11	Geology	2	4	4	4	Mining Engineering	3		3
21	Chem. & Metallurgy		6	2	2	Mining Engineering		6	2
3	Economics	2		2	6	Mining Engineering	2		2
1	Mining Engineering		6	2	8	Mining Engineering	2		2
3	Mining Engineering	2		2	10	Mining Engineering	2		2
5	Mining Engineering	2		2	12	Thesis		3	1
15	Bible	1		1	16	Bible	1		1
				17					17

COURSES OF INSTRUCTION

BIBLE

1–2. The Bible.—General survey of the Old Testament and the Life of Christ. Required of all students throughout the Freshman year. One hour.

3–4. The New Testament.—The Gospels. Required of Technical students throughout the Sophomore year. One hour.

5–6. The New Testament.—The Gospels, in Greek. Required of Classical students throughout the Sophomore year. One hour.

7–8. The New Testament.—The Gospels, in Latin. Required of Latin Scientific students throughout the Sophomore year. One hour.

9–10. The New Testament.—The Acts of the Apostles. Required of Technical and General Scientific students throughout the Junior year. One hour.

11–12. The New Testament.—The Acts of the Apostles in the Greek. Required of Classical students throughout the Junior year. One hour.

13–14. The Plan of Redemption.—Required of Latin Scientific students throughout the Junior year. One hour.

15. History of the English Bible.—Required of all Seniors. First term, Senior year. One hour.

16. Church History.—Practical Ethics. Required of all Technical Seniors. Second term. One hour.

18. Practical Ethics.—Second term. One hour.

GROUP I.—LANGUAGE AND LITERATURE

ENGLISH

1–2. Themes.—Conferences. Required of all Freshmen. First and Second terms. 3 hours. Professor Tupper.

3. A Survey of English Literature.—Required of Sophomores in the Engineering and Chemistry divisions. First term. 3 hours. Professor Tupper.

4. A SURVEY OF ENGLISH LITERATURE.—A continuation of Course 3. Open only to Sophomores in the Engineering and Chemistry divisions. Second term. 3 hours. Professor Tupper.

5–6. AN INTRODUCTION TO THE STUDY OF THE ENGLISH LANGUAGE. —Open to Sophomores in Arts and Science. First and Second terms. The Class of '83 prize. Professor March.

7–8. THE CRITICAL STUDY OF THE TEXT OF SHAKESPEARE.—Open to Juniors. First and Second terms. 3 hours. The New Shakespeare Society prize. Professor March.

9. THE NOVELS OF ROBERT LOUIS STEVENSON.—Open to Juniors and Seniors. First term. 3 hours. The Francis A. March prize. Professor March.

10. ENGLISH PROSE FICTION—NOVELS.—Open to Juniors and Seniors. Second term. 3 hours. Professor March.

11–12. THE SHORT STORY.—Open to Seniors. First and Second terms. 3 hours. Professor March.

15–16. ENGLISH LITERATURE (EXCLUSIVE OF THE DRAMA), FROM THE BIRTH OF MILTON (1608) TO THE DEATH OF BURNS (1796). —Open to Juniors and Seniors. First and Second terms. 3 hours. Professor Tupper.

17–18. THE POETRY OF THE NINETEENTH CENTURY.—Open to Juniors and Seniors. First and Second terms. 3 hours. Professor Tupper.

20. THE MODERN DRAMA.—Open only to those Juniors and Seniors who have elected courses in English literature. Second term. 3 hours. Professor Tupper.

21–22. ENGLISH DRAMA FROM THE BEGINNINGS TO SHERIDAN.—Open to Juniors and Seniors. First and Second terms. 3 hours. Omitted in 1915–16. Professor Tupper.

23–24. ENGLISH PROSE OF THE NINETEENTH CENTURY.—Open to Juniors and Seniors. First and Second terms. 3 hours. Omitted in 1915–16. Professor Tupper.

26. ANGLO-SAXON GRAMMAR AND READING.—Open to Juniors and Seniors. 3 hours. Omitted in 1915–16. Professor March.

27–28. CHAUCER.—Open to Juniors and Seniors. 3 hours. Omitted in 1915–16. Professor March.

GREEK

For the degree of A.B. one year of Greek is required of students who offer three units of Greek at entrance. A prescribed course must be taken in Sophomore year, however, by those who desire to make Greek their major subject in Junior and Senior years.

Students who do not offer Greek at entrance are required to take two years of Greek for the degree of A.B. They, too, may elect Greek as their major subject by taking the prescribed course in their Junior year, in addition to the courses ordinarily required in the case of major subjects.

1. Course for Beginners. Benner and Smyth's *Beginner's Greek Book.* Freshman course, required for the degree of A.B., First term. 3 hours.

2. Course for Beginners. Xenophon, *Anabasis* (Murray), selections. Greek Prose Composition (Pearson). Freshman course, required for the degree of A.B., Second term. 3 hours.

3. Greek Literature. Homer, *The Odyssey* (Merry), selections from books I–XII. Herodotus, books VII and VIII (Smith and Laird). Greek Prose Composition (Pearson). Sophomore course, required for the degree of A.B., First term. 3 hours. Students who offer Greek at entrance will take this course in their Freshman year.

4. Greek Literature. Plato, *The Apology* (Dyer and Seymour). The early Attic Orators (Jebb). Euripides, *Iphigenia among the Taurians* (Bates). Primer of Greek Literature (Jebb). Sophomore course, required for the degree of A.B., Second term. 3 hours. Students who offer Greek at entrance will take this course in their Freshman year.

5. The Greek Drama. Aeschylus, *Prometheus Bound* (Wecklein-Allen). Sophocles, *Oedipus the King* (Jebb). Aristophanes, *Frogs* (Merry). Themes on the Greek Drama and on scenic antiquities. Elective course, First term. 3 hours. Prescribed course for students who make Greek their major subject.

6. Greek History and Oratory. Thucydides, books VI and VII (Marchant). Demosthenes, *On the Crown* (Humphreys). Themes on subjects connected with the Peloponnesian War and the rise of Macedon. Elective course, Second term. 3 hours. Prescribed course for students who make Greek their major subject.

7. The History of Greece. Bury, *A History of Greece to the Death of Alexander the Great* (edition of 1913). Lectures and recitations, with the use of the stereopticon. Collateral reading. Junior course, prescribed for students who make Greek their major subject, First term. 3 hours. The course may be taken by properly qualified Juniors, whether they have taken Greek or not.

8. The History of Greek Literature. Wright, *A Short History of Greek Literature*. Collateral reading in Wright and Abbott's *Golden Treasury of Ancient Greek Poetry* and in Wright and Shadwell's *Golden Treasury of Greek Prose*. Junior course, prescribed for students who make Greek their major subject, Second term. 3 hours. The course may be taken by properly qualified Juniors, whether they have taken Greek or not.

9. The Greek Epic. Homer, *The Iliad* (Monro). Lectures and recitations. Junior course, First term. 3 hours. Omitted in 1915–16.

10. The Greek Comedy. Aristophanes, *Acharnians* and *Clouds* (Merry). Menander, fragmentary plays (Capps). Lectures and collateral reading. Junior course, Second term. 3 hours.

11. Greek Philosophy. Plato, *Republic* (Adam). Lectures and collateral reading. Senior course, First term. 3 hours.

12. Greek Philosophy. Aristotle, *Ethics* (Bywater). Lectures and collateral reading. Senior course, Second term. 3 hours.

13. The Greek Lyric Poets. Tyler, *Selections from the Greek Lyric Poets*. Seymour, *Selected Odes of Pindar*. Lectures and collateral reading. Senior course, First term. 3 hours. Omitted in 1915–1916.

14. The Greek Pastoral, with some study of the Mime. Theocritus, Bion, Moschus, and Herondas. Wilamowitz-Moellendorf, *Bucolici Graeci*. Crusius, *Herondae Mimiambi*. Lectures and collateral reading. Senior course, Second term. 3 hours. Omitted in 1915–1916.

15. The Life and Thought of the Greeks, as illustrated in the Monuments and in the Literature Gulick, *The Private Life of the Ancient Greeks*. Lectures and collateral reading, illustrated by means of the stereopticon, photographs and other illustrative

material. Properly qualified Seniors who do not know Greek may take this course. Seniors course, First term. 3 hours.

16. The Religion and Worship of the Greeks. Fairbanks, *A Handbook of Greek Religion.* Lectures, collateral reading and reports on special topics of investigation. Properly qualified Seniors who do not know Greek may also take this course. Senior course, Second term. 3 hours. Omitted in 1915–1916.

17. Lucian and his Times. Allinson, *Lucian: Selected Writings.* Lectures and collateral reading, with reports on special topics of investigation. Junior course, First term. 3 hours.

18. The Greek New Testament. Westcott and Hort, *The New Testament in Greek.* The Epistles of St. Paul will be read. Junior elective, Second term. 3 hours. Omitted in 1915–1916.

20. Greek Prose Composition. Translation from standard English authors and original composition based on classical models. Senior course, prescribed for students who elect Greek as their major subject, First and Second terms. 1 hour. Omitted in 1915–1916.

LATIN

1. Livy. Horace, *Odes.* First term. 3 hours.

2. Horace, *Epodes, Satires,* and *Letters,* Roman Life. Second term. 3 hours.

3. Cicero, *De Oratore.* Roman History: *Latin Hymns.* First term. 3 hours.

4. Cicero, *De officiis. Latin Hymns.* Second term. 3 hours.

5. Tacitus, *Agricola, Germania,* beginning Epistolary Latin. Open to Juniors and Seniors. First term. 3 hours.

6. Epistolary Latin. Lucretius. Open to Juniors and Seniors. Second term. 3 hours.

7. Juvenal. Terence. Open to Juniors and Seniors. First term. 3 hours.

8. Tacitus, *Annals.* Terence. Open to Juniors and Seniors. Second term. 3 hours.

MODERN LANGUAGES

In the A.B. course, German 1 or French 1 will be scheduled, provided these have not been used for entrance. If two units of either of these languages are offered for entrance, then French 3 or German 3 must be scheduled.

In the Ph.B. course the following alternatives are offered: (1) Three years of one modern language and one year of the other, including preparatory work, must be completed; or (2) two years of each modern language, including preparatory work, must be completed.

In the B.S. course, two years in both French and German, including preparatory work, must be completed.

In the engineering courses either French or German is scheduled for the Freshman year, as the entering student may elect. If two units of German are offered for entrance, French 1 or German 3 is scheduled. If two units of French are offered for entrance, German 1 or French 3 is scheduled. In the second term of the Sophomore year an opportunity is offered to continue advanced work in either French or German.

In the pre-medical and Chemistry courses, German is required in the Freshman year.

FRENCH

French 1. Elementary French. Grammar, syntax, prose composition and the reading of easy prose. Oral and written work. First term. 3 hours.

French 2. Elementary French, continued. Second term. 3 hours.

French 3. Intermediate French. Reading of standard authors. Prose composition. Pre-requisites: French 1 and 2, or a minimum of two entrance units. First term. 3 hours.

French 4. Advanced French. Rapid reading of more difficult French prose. Pre-requisites: French 3, or a minimum of three units for entrance. 3 hours.

French 8. Scientific French. An introduction to technical literature. Open to those who have qualified in French 3. Second term. 3 hours.

French 21. French History. Collateral reading and reports. First term. 3 hours.

French 22. Modern French Novel. Selections from Dumas *père*, Hugo, George Sand, Zola, etc. Reports. Second term. 3 hours.

French 23. French Tragedy. First term. 3 hours.

French 24. French Comedy. Second term. 3 hours.

GERMAN

German 1. Elementary German. Grammar and reading. Written and oral work. First term. 3 hours.

German 2. Elementary German, continued. Second term. 3 hours.

German 3. Intermediate German. German syntax, prose composition, and the reading of more difficult prose. Preparation required: German 1 and 2, or a minimum of 2 units offered for entrance. First term. 3 hours.

German 4. Advanced German. Rapid reading of historical novels relating to the history and development of the Teutonic race. Preparation required: German 3, or a minimum of 3 units offered for entrance. Second term. 3 hours.

German 8. Scientific German. An introduction to technical literature. Open to those who have taken German 3. Second term. 3 hours.

German 11. Nineteenth century writers. First term. 3 hours.

German 12. Nineteenth century writers. Second term. 3 hours.

German 13. Schiller and his works. First term. 3 hours.

German 14. Goethe and his works. Second term. 3 hours.

German 21. Goethe's Faust. To be offered in 1915–16 and 1917–18. First term. 3 hours.

German 22. Goethe's Faust, continued. Second term. 3 hours.

German 23. Grillparzer and his works. To be offered in 1916–17 and 1918–19. First term. 3 hours.

German 24. Grillparzer and his works, continued. Second term. 3 hours.

German 28. History of German Literature. First term. 3 hours.

German 29. Teacher's Course. A critical study of the methods of teaching modern languages. Phonetics. Selection and criticism of text-books. Second term. 3 hours.

German 31. Middle High German. First term. 3 hours.

German 32. Middle High German, continued. Second term. 3 hours.

SPANISH

Spanish 1. Elementary Spanish. Grammar, composition, translation and conversation. First term. 3 hours.

Spanish 2. Elementary Spanish, continued. Second term. 3 hours.

Spanish 3. Advanced Spanish. Modern prose. Selections from Alarcón, Becquer, Valera and Galdés. Continued composition and oral drill. First term. 3 hours.

Spanish 4. American Spanish Literature. Poems in *Bardos Cubanos*. Spanish correspondence. Second term. 3 hours.

Italian 1. Elementary Italian. First term. 3 hours.

Italian 2. Elementary Italian, continued. Second term. 3 hours.

GROUP II.—EDUCATION, HISTORY, PHILOSOPHY AND POLITICAL SCIENCE

ECONOMICS

2. Principles of Economics. Second term. 3 hours.

3. Business Corporations, Trusts, and the Labor Problem. First term. 2 hours.

4. Money and Banking. Second term. 3 hours.

5. Transportation and Trade, Foreign and Domestic. First term. 2 hours. Given alternately with No. 3. Not given 1915–16.

EDUCATION

1. History of Education. First term. 3 hours.

2. School Management. Second term. 3 hours.

GOVERNMENT AND LAW

2. American Government and Politics, Federal, State and Municipal. Second term. 3 hours.

3. Governments and Parties of Modern Europe. Introduction to Political Science and Comparative Government. First term. 3 hours.

5. International Law. First term. 3 hours.

9. Law. Blackstone's Commentaries. First term. 3 hours.

10. Business Law. Contracts, agency, partnership corporations, sales, insurance, estates and negotiable paper. Second term. 2 hours.

7. Municipal Government. First term. 3 hours. Given alternately with No. 4. Not given 1915–16.

HISTORY

2. Modern European History. Introductory Course. Second term. 3 hours.

3. History of England. Tudor and Stuart dynasties. First term. 3 hours.

4. American Political and Constitutional History, from the Revolution to the Civil War. Second term. 3 hours.

5. American History. From the Civil War to the present. First term. 3 hours.

7. Mediaeval Europe. From the barbarian migrations to the Renaissance. Open to Juniors and Seniors. First term. 3 hours.

8. Renaissance and Reformation. Open to Juniors and Seniors. Second term. 3 hours.

9. Church History. History of the Christian Church to the fifteenth century. First term. 3 hours. Given alternately with No. 7. Not given 1915–16.

10. Seminar in English History. Second term. 3 hours. Given alternately with No. 8. Not given 1915–16.

11. History of England. Political and Constitutional History of the Eighteenth and Nineteenth centuries. First term. 3 hours. Given alternately with No. 3. Not given 1915–16.

History of Greece. See announcement in Department of Greek, No. 7. First term. 3 hours.

PHILOSOPHY

2. Psychology. Second term. 3 hours.
3. Logic. First term. 3 hours.
4. Ethics. Second term. 3 hours.
5. History of Ancient Philosophy. First term. 3 hours.
6. Theism. Second term. 2 hours.
7. Educational Psychology. First term. 3 hours.
9. Introduction to Problems of Philosophy. Second term. 3 hours. Given alternately with No. 5. Not given 1915–16.
10. History of Modern Philosophy. Second term. 3 hours. Given alternately with No. 6. Not given 1915–16.

SOCIOLOGY

1. Principles of Sociology. First term. 3 hours.
2. Social Reform, and Applied Sociology. Second term. 3 hours

GROUP III.—MATHEMATICS AND SCIENCE

BIOLOGY

The work in Course I consists of two class-room hours and two laboratory hours. The work in the other courses consists of one class-room hour and four laboratory hours in each course.

1. Botany. Open to Freshmen, Sophomores and Juniors who have had a course in Chemistry in secondary school or college. First term. Three hours. Asst. Prof. Foster.

2. General Biology. Required of Freshmen in the Medical Preparatory Course and open to Sophomores and Juniors who have had a course in Chemistry in secondary school or college. Second term. Three hours. Professor Davison and Asst. Professor Foster.

3. Vertebrate Zoölogy. Open to Sophomores in the Medical Preparatory Course and Juniors and Seniors who have had a course in Biology or Chemistry in secondary school or college. First term. Three hours. Asst. Professor Foster.

4. Bacteriology and Health. Open to Sophomores in the Medical Preparatory Course and to Juniors and Seniors who have taken Course 1 or 2. Second term. Three hours. Professor Davison.

5. Physiology. Open to Sophomores in the Medical Preparatory Course and to Seniors only who have taken Courses 2 and 3. First term. Three hours. Professor Davison.

6. Eugenics and Embryology. Open to Sophomores in the Medical Preparatory Course and to Seniors only who have taken Courses 2 and 3. Second term. Three hours. Professor Davison.

7. Sanitary Biology. Required of Senior Mechanical and Mining Engineers. First term. Three hours.

8. Sanitary Biology. Required of Senior Civil Engineers. Second term. Three hours.

A full description of the above courses is given in the College catalogue. In the present scheme the study of Mammalian Anatomy is included in the course in Vertebrate Zoölogy.

CHEMISTRY AND METALLURGY

1. Descriptive Chemistry. Freshman year, First term. 3 hours.

2. Quantitative and Qualitative Analysis. Freshman year, Second term. 3 hours.

3. Qualitative Analysis. Sophomore year, First term. 5 hours.

4. Organic Chemistry. Sophomore year, Second term. 5 hours.

5. Quantitative Analysis. Junior year, First term. 3 hours.

6. Quantitative Analysis. Junior year, Second term. 6 hours.

7. Theoretical Chemistry. Junior year, First term. 2 hours.

8. Theoretical Chemistry. Junior year, Second term. 2 hours.

9. Chemical Arithmetic. Junior year, First term. 2 hours.

11. Metallurgy. Junior year, First term. 2 hours.

12. Metallurgy. Junior year, Second term. 2 hours.

13. Chemical German. Junior year, First term. 1 hour.

14. Chemical German. Junior year, Second term. 1 hour.

16. Organic and Inorganic Preparations. Junior year, Second term. 2 hours.

17. Chemical Engineering. Senior year, First term. 3 hours.

18. Chemical Technology. Senior year, Second term. 3 hours.

19. Chemical German. Senior year, First term. 1 hour.

20. Chemical German. Senior year, Second term. 1 hour.

21. Assaying. Senior year, First term. 2 hours.

23. Quantitative Analysis. Senior year, First term. 6 hours.

24. Thesis Work. Senior year, Second term. 8 hours.

25. Organic and Inorganic Preparations. Senior year, First term. 2 hours.

27. Qualitative Analysis. Junior or Senior year, for A.B. and Ph.B. students who elected Chemistry in Freshman year, First term. 2 hours.

28. Qualitative Analysis. Continuation of 27, Second term. 2 hours.

29. Organic Chemistry or Quantitative Analysis. Senior year for those who have had 27 and 28, First term. 2 hours.

30. Organic Chemistry or Quantitative Analysis. Continuation of 29, Second term. 2 hours.

31. Descriptive Chemistry for A.B. and Ph.B. students beginning Chemistry. Junior year, First term. 3 hours.

32. Qualitative Analysis for those who elected 31. Junior year, Second term. 2 hours.

33. Qualitative Analysis. Senior year. Continuation of 32. First term. 2 hours.

34. Organic or Quantitative Analysis. Senior year for those who have had 31 and 32, Second term. 2 hours.

GEOLOGY

1. Dynamical, Structural and Physiographical Geology. Elective for Juniors and Seniors. First term, 3 hours.

2. Historical Geology. Elective for Juniors and Seniors. Second term, 3 hours.

3. Field Geology, followed by Paleontology. Elective for Juniors and Seniors. First term, 3 hours.

4. Tertiary Mammals. Man and the Glacial Period. Elective for Juniors and Seniors. Second term, 3 hours.

5. Crystallography. Elective for Juniors and Seniors proposing to Major in Geology. First term, 3 hours.

6. Petrography. Elective for Juniors and Seniors proposing to Major in Geology. Second term, 3 hours.

7. General Geology. Short Course. Required for Junior Civils, Chemists and Miners. First term, 2 hours.

8. General Geology Continued. Short Course. Required for Junior Civils, Chemists and Miners. Second term, 2 hours.

9. Field and Economic Geology. Required for Senior Civils (1916 only), Chemists and Miners. First term, 2 hours.

11. Geology of Ore Deposits. Required for Senior Chemists and Miners. First term, 2 hours.

12. Geology of Ore Deposits Continued. Required for Senior Chemists and Miners. Second term, 2 hours.

13. Systematic Mineralogy. Required for the Senior Chemists and Miners. First term, 2 hours.

14. Petrography and Goniometrical Measurements. Required for Senior Chemists and Miners. Second term, 2 hours.

GRAPHICS

1. Drawing, Lettering, and Projection. First term, Freshman year. Text-books—"Mechanical Drawing," Graves, and "Freehand Lettering," Reinhardt. 2 hours.

a. Drawing. Lectures on instruments and materials; elementary plates to afford practice in using the drawing instruments and illustrate the simpler operations of drawing; recitations and drawing plates on conic sections.

b. Lettering. Analytical study of, and practice in making, lower case and capital letters suitable for general engineering drawing; the lettering of connected sentences to acquire facilty in spacing; lettering for titles.

c. Orthographic Projection. Recitations and drawing plates to train the technical imagination and power of visualization in three dimensions through the projection and successive revolutions of various solids.

2. Drawing, Freehand Sketching and Isometric. Second term, Freshman Year. Text-book—"Mechanical Drawing," Graves. 2 hours.

a. Drawing. Working drawings of machine details, screw threads, bolts, etc.; drawing of large structures taken from detail sketches and uncompleted views such as, bent for a timber trestle, timber highway bridge, built up steel columns and girders; tracing and blue printing.

b. Freehand Sketching. Sketches of various machine details from which working drawings are made; a systematic study of dimensioning and line shading.

c. Isometric Drawing. Sketches and drawings of simple objects in isometric.

3. Descriptive Geometry. First term, Sophomore year. Text-book—"Descriptive Geometry," Church and Bartlet. 2 hours.

Problems on the point line and plane. Particular emphasis is laid on the necessity to mentally visualize the various problems.

4. Descriptive Geometry—Machine Drawing. Text-books—"Descriptive Geometry," Church and Bartlet, and notes on Machine Drawing, 3 hours.

a. Descriptive Geometry. Generation and properties of surfaces of single and double curvature; warped surfaces; intersections and developments; shades and shadows, perspective, and a continuation of 2*c* in isometric.

b. Machine Drawing. A continuation of 2*b*. Freehand sketches of machine parts such as pulleys, shaft hangers, gate valves, eccentrics, etc.; details and assembly of a model water pump; from the sketches drawings and tracings are made.

MATHEMATICS

1. Algebra. Required of Arts and Science Freshmen. First term. 3 hours.

2. Solid Geometry and Trigonometry. Required of Arts and Science Freshmen. Second term. 3 hours.

3. Algebra and Trigonometry. Required of Engineering and Chemistry Freshmen. First term. 6 hours.

4 Analytical Geometry. Required of Engineering and Chemistry Freshmen. Second term. 3 hours.

5. Trigonometry. Required of Science, and elective for other Sophomores. First term. 3 hours.

6. Analytical Geometry. Required of Science, and elective for other Sophomores. Second term. 3 hours.

7. Differential Calculus. Required of Engineering and Chemistry Sophomores. First term. 3 hours.

8. Integral Calculus. Required of Engineering and Chemistry Sophomores. Second term. 3 hours.

9. Differential Calculus. Elective for Arts and Science Juniors. First term. 3 hours.

10. Integral Calculus. Elective for Arts and Science Juniors. Second term. 3 hours.

11. Differential Equations. Elective for Arts and Science Juniors. First term. 3 hours.

12. Theory of Functions. Elective for Arts and Science Seniors. Second term. 3 hours.

13. Astronomy. Elective for Arts and Science Seniors. First and Second terms. Elective for Arts and Science Juniors. 3 hours.

PHYSICS

1–2. General Course including Light, Sound, Mechanics, Heat, Electricity and Magnetism. First and Second terms. 3 hours.

3–4. General Course for engineering students. First and Second terms. 4 hours.

5–6. For engineering students. First and Second terms. 2 hours.

7. Mechanics and Heat. Recommended for Juniors who have not had Physics in High School. First term. 3 hours.

9. Electricity. The fundamentals of electricity and magnetism. First term. 3 hours.

11. Ions and Electrons. Conduction of electricity in theory of galvanic cells, conduction through gases, radioactivity and X-rays. Open to all Seniors who have completed required course in Physics. First term. 3 hours.

IV.—ENGINEERING

CIVIL ENGINEERING

2. Plane Surveying. Theory relating to the construction and use of instruments. Field problems in the manipulation and use of chain, compass, transit and level. Area computations. Methods of Plotting. Text-book—Breed and Hosmer's *Plane Surveying.* Second term, Freshman year. 2 hours.

2*a*. Summer School. Recitations and lectures on Surveying Methods and Adjustments of Instruments. Practice in the adjustments of instruments. Students are divided into squads of six men. Each squad, in charge of an instructor, makes a survey of an area whose perimeter is approximately five miles, including all topography, and a profile of the bounding roads of the traverse. Upon completion of all field work each student is required to plot a map and profile. Three weeks in vacation at end of Freshman year.

3. Topographic Surveying. Recitations and lectures on the principles involved and methods employed in the use of the transit, stadia and plane table. Use of stadia slide rules, diagrams and tables. Determination of stadia constant. Surveys of portions of the College campus. Maps, locating contours and cross sectioning with Hand level. Contour problems. Text-books—Breed and Hosmer's *Surveying,* Vols. I and II. First term, Sophomore year. 2 hours.

4. Railroads. Simple Compound, Reversed, Vertical and Transition Curves. Problems. Turnouts, connecting Tracks and Cross-

ings. Field Problems. Paper location of a railroad. Construction of the profile. Estimate of quantities. Text-book—Allen's *Railroad Curves and Earthwork.* Second term, Sophomore year. 2 hours.

4*a*. Summer School. Railroad surveying. Reconnaissance. Preliminary survey, Paper and Final Location. Determination of grades, slope staking, and cross sectioning. Drawing of map and profile of a line approximately two miles long is made.

Through the coöperation of the officials of one of the railroads with the Department of Civil Engineering all students are given a practical course in Railroad Maintenance, the Summer School schedule being so arranged as to give each student one week of Maintenance work. The remainder of each student's time is equally distributed through all phases of the Location work. Three weeks in vacation at end of Sophomore year.

5. Railroads. Methods of computing earthwork. Construction and use of tables and diagrams. Problems. Completion of Summer School Map and Profile. Computation of earthwork from notes of Summer School survey Mass diagram. Determination of necessary right of way. Area computations. Economic location. Construction and operation. Problems. Text-books—Allen's *Railroad Curves and Earthwork.* Webb's *Railroad Construction.* First term, Juni or year. 3 hours.

6. Geodesy. Construction and use of precision instruments. Geodetic surveying methods. Triangulation, precise leveling and base-line measurements. Solar observations. Computations. Field work. Text-book—*Breed and Hosmer,* Vol. II. Second term, Junior year. 3 hours.

7. Applied Mechanics. Statics. Forces, equivalence of force systems, centroids, general principles of equilibrium and application of the principles of equilibrium. Kinematics. Rectilinear and curvilinear motion, motion of a rigid body. Kinetics. Motion of a particle, and of a system of particles, translation of a rigid body, rotation, work and energy. Text-book—Maurer's *Technical Mechanics.* First term, Junior year. 3 hours.

8. Roads and Pavements. Location, construction and main-

tenance of town and country roads, city streets and pavements. Street cleaning. Text-book—Baker's *Roads and Pavements*. Second term, Junior year. 2 hours. For Laboratory work, see No. 28.

9. Mechanics of Materials. The principles of stress and strain; the behavior of materials under tension, compression and shearing; investigation and design of pipes, riveted joints, boilers and standpipes; strength and flexure of simple and cantilever beams. Report on the carrying capacity of a floor. Text-book—Merriman's *Mechanics of Materials*. First term, Junior year. 3 hours.

10. Mechanics of Materials. Continuation of 9. Restrained and continuous beams; columns; shafts. Impact and fatigue; true and internal stresses; mathematical theory of elasticity. Design of an I-beam highway bridge and of a steel standpipe. Text-book—Merriman's *Mechanics of Materials*. Second term, Junior year. 3 hours.

11. Cement. The study of composition and method of manufacture of cement. Interpretation and method of performing different physical tests. Inspection and sampling of cement. Visit to cement mills. Standard methods of testing and specifications for cement. Text-book—Taylor's *Practical Cement Testing*. Materials, laws of proportioning, forms for concrete, making and placing of concrete, strength, weight, and cost, concrete building blocks and artificial stone. Text-book—Baker's *Masonry*. Second term, Junior year. 2 hours. For Laboratory work, see 27.

12. Masonry. Classification and properties of stone, building brick, common and hydraulic lime, sand, gravel and broken stone. Stone-cutting, stone and brick masonry. Ordinary and pile foundations. Foundations under water. Retaining walls, bridge abutments, bridge piers and culverts. Text-book—Baker's *Masonry*. Second term, Junior year. 2 hours.

13. Masonry Design. Design of a high masonry dam and masonry arch, using both graphical and numerical processes. Notes. First term, Senior year. 2 hours.

14. Framed Structures. The theory and computation of stresses in simple roof and bridge trusses and towers, under dead, live and wind loads. Notes. Second term, Junior year. 2 hours.

15. Roofs and Bridges. Continuation of 14. Railroad bridges under locomotive wheel, excess and equivalent loads. Stress sheets. Complete computations and design drawing for a wooden roof truss with bill of materials and estimate of cost. Complete computations and design drawing of a plate girder for railroad purposes, in accordance with standard specifications. Bill of materials, weights and estimate of cost. Text-book—Merriman and Jacoby, Part I, and notes. First term, Senior year. 6 hours.

15*a*. Roofs and Bridges. Same as 14, given to Mechanical Engineers only. First term, Senior year. 2 hours.

16. Roofs and Bridges. The theory and computation of the stresses in continuous, partially continuous, draw and cantilever trusses, suspension bridges and arches. Complete computations and design drawing of a through pin connected railroad bridge in accordance with standard specifications. Bill of materials, weights and estimate of cost. Second term, Senior year. 6 hours.

17. Sewerage. The disposal of sewage and garbage. The determination of the size and capacity of sewers, inlets and flush tanks. Construction methods. Text-book—Folwell's *Sewerage*. First term, Senior year. 2 hours.

18. Sewerage Design. Design of a sewer system for a small city with map and profiles. Notes. Second term, Senior year. 2 hours.

19. Hydraulics. Hydrostatics, hydraulic instruments, orifices, weirs and tubes. Text-book—Merriman's *Hydraulics*. First term, Senior year. 2 hours.

20. Hydraulics. Continuation of 19. Pipes, conduits; rivers; water power; dynamics; overshot, undershot and breast wheels; impulse wheels; turbines. Text-book—Merriman's *Hydraulics*. Second term, Senior year. 2 hours.

21. Water Supply. The requisites for a good water; the available sources of supply; the construction of pumping plant, reservoirs and pipe lines; purification of water and its distribution to the public. Text-book—Turneaure and Russell's *Public Water Supplies*. First term, Senior year. 2 hours.

22. Water Supply Design. Design of a water-supply system for a small city. Notes. Second term, Senior year. 1 hour.

23. Concrete, Reinforced. Properties of material, contraction and expansion, fireproofing, steel requirements, concrete and steel in combination. The theory and design of slabs, beams, and columns. Text-book—Hool's *Reinforced Concrete Construction*, Vol. I. First term, Senior year. 2 hours. Not offered 1915–16.

25. General Testing Laboratory. Study and use of testing machines. Commercial tension tests of iron and steel. Modulus of elasticity in tension and compression. Shear tests of iron and steel. First term, Junior year. 1 hour.

26. General Testing Laboratory. Transverse tests of cast iron and wood; modulus of elasticity of steel in bending; tests of wooden columns; torsion tests of iron and steel; calibration of testing machines. Second term, Junior year. 1 hour.

27. Laboratory, Cement. Routine tests of Portland cements are made in accordance with the standard methods and specifications, the aim being to have the student become thoroughly acquainted with each standard test and to appreciate the significance of the results obtained. Special tests are also assigned to each student. Notes.

Concrete. Mechanical analysis of the materials for concrete, proportioning and mixing, preparation of plain and reinforced concrete specimens for future tests. Notes.

Reinforced Concrete. Tests on plain concrete specimens to determine the stress deformation curve in tension and compression. Modulus of elasticity. Tests on reinforced beams to determine deflection and fiber stress distribution, location of neutral axis, and comparison of actual results with those given by various formulas. First term, Senior year. 1 hour. Not offered 1915–16.

28. Road Material Laboratory. Standard tests of paving brick and road metal. Second term, Junior year. Four single two-hour periods.

30. Hydraulic Laboratory. Tests are made on the circular orifice, the Venturi meter, water meters and weirs. Second term, Senior year. 1 hour.

32. Thesis. A thesis is required of every student as a condition of graduation, upon a subject appropriate to and approved by the Department. All laboratories and other apparatus belonging to the Department may be used for thesis purposes. Second term, Senior year. 6 hours.

33. Municipal Sanitation. Water Supply, Sewerage and Sewage Disposal, Street Cleaning and Garbage Disposal, from the viewpoint of the public health officer. First term, Sophomore year. 3 hours.

ELECTRICAL ENGINEERING

1. Alternating Current Engineering. A study of alternating current circuits, apparatus and systems, single and polyphase. First term, Junior year, 3 hours.

3–4. Electrical Laboratory. A course in general electrical engineering testing. Throughout the Junior year, 2 hours.

5. Elements of Electrical Engineering. An introductory study of direct and alternating current circuits, systems and apparatus. First term, Junior year, 2 hours.

6. Motor and Illuminating Engineering. A study of the application of electrical energy to motor and illuminating engineering. Second term, Junior year, 3 hours.

7–8. Electrical Laboratory. A continuation of Courses 3 and 4, covering advanced electrical engineering testing. Throughout Senior year, 2 hours.

9–10. Electrical Laboratory. A shorter course in electrical engineering testing. Throughout Junior year, 1 hour.

11. Electric Power Transmission. A study of electric transmission and distributing circuits and systems. First term, Senior year, 4 hours.

12. Electrical Problems. The solution of problems relating to direct and alternating current engineering. Second term, Senior year, 2 hours.

13. Electrical Design. The design of direct and alternating current apparatus. First term, Senior year, 2 hours.

14. Electric Railway Engineering. The engineering and econom-

ics of railway construction and operation. First term, Senior year, 3 hours. Elective, Second term, Senior year, 1915–1916.

16. Electric Power Plant Engineering. The study of the conditions affecting the design, erection and operation of electric power plants and substations. Second term, Senior year, 3 hours.

18. Telephones. A study of the modern telephone systems with a review of the early systems. Elective, Second term, Senior year, 3 hours.

20. Storage Battery Engineering. A study of the storage battery, its operation and its application in engineering. Elective after 1915–1916, Senior year, 3 hours.

21–22. Engineering Abstracts. The review and discussion of articles and papers of value in current engineering literature. Throughout Junior and Senior years, 1 hour.

24. Thesis Work. A thesis is required of every student as a condition of graduation, the topic being assigned or approved by the head of the Department. The thesis must show the result of individual investigation and research. Second term, Senior year, 2 hours.

MECHANICAL ENGINEERING

1–2. Shop "A." A course in practical work, two periods per week, throughout both Sophomore and Junior years, in Pattern Making, Forging, Sheet Metal and Pipe Work, and Machine Shop Practice. 2 hours.

3–4. Shop "B." An elementary course in practical work, two periods per week, throughout Sophomore year, in Pattern Making, Foundry Practice, Forging, and Machine Shop Practice. 2 hours.

5–6. Heat Engineering "A." A course of lectures and quizzes, three periods per week, throughout Junior and Senior years, on Steam Boilers, Mechanism of Steam Engines, Steam Turbines, Internal Combustion Engines, Refrigeration, and the Principles of Thermodynamics. 3 hours.

7–8. Heat Engineering "B." An elementary course of lectures and quizzes, three periods per week, throughout Junior or Senior year, on Steam Engines, Internal Combustion Engines, and the Principles of Thermodynamics. 3 hours.

9–10. Machine Design. A course of lectures and drawing periods, three periods per week, throughout Senior year, including a study of the motion of machines, design of gearing, of simple machines, power transmission, a study of the action of reciprocating parts, etc. 3 hours.

12. Industrial Management. A course of lectures and quizzes, two periods per week, throughout the second term, Senior year, on Paying Labor, Cost-keeping, Organization, Location of Plants, Contracts, Specifications, Finance, etc. 2 hours.

14. Boiler Design. (1915–16 only.) A course of lectures and drawing periods in design of different types of boilers, and accessories. Three periods per week, second term, Junior year. 3 hours.

16. Thesis. A thesis is required of every student as a condition of graduation. The subject may be chosen by the student, and must be approved by the Department.

MINING ENGINEERING

1. Mine Structures. Study of stresses in beams, columns, girders and trusses by graphic statics. Masonry, foundations, and retaining walls. Shaft timbering. Square set timbering methods. Design of a mine gangway set, of flumes, trestles and roof trusses. First term, Senior year. Two hours.

2. Mine Structures. Design of ore bins, head frame, tipples and mill buildings. Second term, Senior year. Two hours.

3. Mine exploitation. Open cut work. Hydraulic mining. Gold dredging. Coal mining methods. Metal mining methods. Stoping methods. Slicing, caving, filling, block caving, room and pillar methods of mining ore. Methods of mine development. Maps to illustrate. Salt mining. First term, Senior year. Two hours.

4. Ore Dressing. Hand picking. Principle of crushing, and concentration. Crushers: jaw and gyratory, rolls, stamps, Huntington mill, Chilean mill, arastras. Classifying machinery: trommels, grizzlies, shaking screens, hydraulic classifiers, settling ponds, spitzkastens. Concentrating machinery: jigs with theory of

jigging, vanners, tables, magnetic concentrators, amalgamation. Second term, Senior year. Two hours.

5. Mine Machinery. Coal cutters, drills, hoists, cableways, motors, blast firers, air compressors. Theory of air compression and method of using and conducting compressed air. First term, Senior year. Two hours.

6. Shaft Sinking, Drifting, Tunneling. Shaft excavation and timbering. Location. Alignment. Level stations in the shaft. Special sinking methods: piling drums, freezing process, Triger's method, Kind-Cauldron system. Lippman's system. Tunneling methods in hard and soft rock. Systems of tunneling. Second term, Senior year. Two hours.

8. Ventilation and Lighting. Air in mines. Mine gases. Testing air. Analysis of mine gases. Natural, furnace ventilation. Positive blowers. Centrifugal fans. Theory and efficiency of fans. Measurement and control of air currents. Resistance of air ways. Explosions. Laws. Method of lighting. Safety lamps, electric lights. Laws. Second term, Senior year. Two hours.

10. Mining Law. Review of the mining laws of the various countries. General principles of real estate law with respect to minerals. United States mining laws. State laws and local regulations. Second term, Senior year. Two hours.

12. Thesis. A graduating thesis is required of each candidate for a degree. This thesis must be an original design or review of some process, machinery or plant related to mining operations. The subject of the thesis is assigned by the department along lines of special interest to the student. Second term, Senior year. Two hours.

PHYSICAL TRAINING AND HYGIENE

1. Lectures on Health and the general principles of Physiology. Illustrated with stereopticon views, charts, etc. First term. 3 hours a week for six weeks.

3–4. Physical Training. Physical examination and assigned exercises in the Gymnasium. First and second terms, beginning November 1st. 4 hours.

FEES AND EXPENSES

Tuition per year, Divisions I, II, and III	$100.00
Divisions IV and V (Engineering and Pre-medical)	150.00
Incidental Fee for upkeep of grounds and buildings per year	25.00
Library Fee per year	15.00
Gymnasium Fee per year	5.00
Student Activities Fee, including membership in Athletic Association, admission to games, subscription to the Lafayette, etc., per year	10.00
Matriculation Fee (paid once only)	10.00
Graduation and Diploma Fee (paid once only)	10.00
Damage Deposit, per year, balance not used to offset public damage returned to student	2.00
Laboratory Fees for Material in Laboratory Courses, paid only by students taking laboratory courses:	
Biology, each laboratory course per term	3.50
Chemistry, each laboratory hour per week per term	1.50
Geology, each laboratory course per term	3.00
Mechanical Engineering Shop, per term	12.50
Physics, each laboratory course per term	5.00
General Testing Laboratory, per term	4.00
Electrical Engineering Laboratory, per term	7.50
Cement Laboratory, per term	1.00
Graphics, Material Fee, per term	0.50

All fees, except the laboratory fee in chemistry, are to be paid to the Bursar, at the college office. Checks should be made payable to "Lafayette College."

The entire incidental, gymnasium and damage fees and one-half the tuition and other charges are due and payable at the beginning of the first term. Ten per cent penalty will be added to all bills not paid by October first. The balance of fees is due and payable at the beginning of the second term. Ten per cent penalty will be added to all bills not paid by March first. The matriculation fee is due upon filing certificate for admission.

Students entering after the middle of the term shall pay one-half of the tuition for the term. Students obliged on account of sickness to leave before the middle of the term may have refunded to them one-half of the tuition for the term; no reduction will be made to those leaving for any other cause.

SCHOLARSHIPS

Aid in the form of scholarship loans repayable in installments beginning five years after graduation is given to a limited number of young men of ability, industry and character, who would otherwise be unable to secure a college education. The amount of aid will depend upon the necessities of the applicant, but in no case will exceed the charge for tuition for students in Divisions I and II, nor half the charge for tuition for students in Civil Engineering, Electrical Engineering or Mining Engineering. No aid is available for students in Divisions III or V, nor for students in Mechanical Engineering.

ROOMS AND BOARD

Unfurnished rooms in the College Dormitories, South Hall, East Hall, Blair, Fayerweather, Knox, Martien, McKeen, Newkirk and Powell rent for $24 to $144 a year for one or two persons. The additional charge for electric light is $9 per year and for steam heat $12 per year for each person. Applications for rooms should be made to the Superintendent of Grounds and Buildings, Albert M. Lane, at the College Office.

There are also ten fraternity houses on or near the college campus with rooms for about 180 students.

The college does not conduct a college commons or dining hall but furnishes facilities for eating clubs in the college dormitories. Board in these clubs, in boarding houses in the immediate vicinity of the campus, and in fraternity houses may be secured at $4 to $5 a week.

SCHEDULE FOR FRESHMAN AND SOPHOMORE CLASSES

HR.	MONDAY	TUESDAY	WEDNESDAY
8	Latin 1 (A.B. and Sect. A of Ph.B.) Mathematics 1 (Sect. B) Mech. Eng. 3 Physics 1 (Quiz, Sect. A)	Latin 1 (A.B. and Sect. A of Ph.B.) Mathematics 1 (Sect. B) Mech. Eng. 3 Physics 1 (Quiz, Sect. B)	Bible 5 (A.B., Ph.B.) Latin 1 (A.B. and Sect. A of Ph.B.) Mathematics 1 (Sect. B) Physics 1 (Lab. B.S., M.P.) Physics 3 (Quiz, B.S. in Chem.)
9	English 1 (A.B.,B.S., M.P.) Mathematics 3 (Sect. B) Mech. Eng. 3 Physics 1 (Lecture)	English 1 (A.B., B.S., M.P.) Mathematics 3 (Sect. B) Mech. Eng. 3 Physics 1 (Lecture)	English 1 (A.B., B.S., M.P.) Mathematics 3 (Sect. B) Physics 1 (Lab. B.S., M.P.) Physics 3 (Lect. B.S. in Chem.)
10	Chemistry 1 (B.S. in Chem.) French 1–3, German 1–3 (Section C) Graphics 1 (B.S., not in Physics) Physics (B.S., elective)	Chemistry 1 (B.S. in Chem.) French 1–3, German 1–3 (Section C) Graphics 1 (B.S., not in Physics) Physics (B.S., elective)	Chemistry 1 (B.S. in Chem.) French 1–3, German 1–3 (Section C) Graphics 1 (B.S., not in Physics) Physics (B.S., elective)
11	Chemistry 1 (B.S. in Chem.) Graphics 1 (B.S., not in Physics) Mathematics 5 Physics (B.S., elective)	Chemistry 1 (B.S. in Chem.) Graphics 1 (B.S., not in Physics) Mathematics 5 Physics (B.S., elective)	Chemistry 1 (B.S. in Chem.) Graphics 1 (B.S., not in Physics) Mathematics 5 Physics (B.S., elective)
1	Biology 1–3–5 Chemistry 3 (B.S. in Chem.) English 1 (Ph.B., B.S. in Chem.) Graphics 1 (B.S. in Chem.)	Biology 1–3–5 Chemistry 3 (B.S. in Chem.) English 1 (Ph.B., B.S. in Chem.) Graphics 1 (B.S. in Chem.)	Public Lectures and student organization meetings
2	Biology 1–3–5 Chemistry 3 (B.S. in Chem.) Graphics 1 (B.S. in Chem.) Greek 3 Latin 1 (Sect. B of Ph.B.) Physics 1 (Lab. A.B., Ph.B., Sect. B)	Biology 1–3–5 Chemistry 3 (B.S. in Chem.) Graphics 1 (B.S. in Chem.) Greek 3 Latin 1 (Sect. B of Ph.B.) Physics 1 (Lab. A.B., Ph.B., Sect. B)	Bible 1 Bible 5 (B.S., M.P., B.S. in Chem.)
3	Biology 1–3–5 Chemistry 3 (B.S. in Chem.) Graphics 1 (B.S. in Chem.) Physics1 (Lab. A.B., Ph.B., Sect. B)	Biology 1–3–5 Chemistry 3 (B.S. in Chem.) Graphics 1 (B.S. in Chem.) Physics 1 (Lab. A.B., Ph.B., Sect. B)	

ARTS AND SCIENCE COURSES, 1ST TERM, 1915–16

THURSDAY	FRIDAY	SATURDAY
French 1–3, German 1–3 (Section A) Mathematics 1 (Sect. A) Physics 1 (Lab. B.S., M.P.) Physics 3 (Quiz, B.S. in Chem.)	French 1–3, German 1–3 (Section A) Chemistry 3 Mathematics 1 (Sect. A) Physics 1 (Lab. A.B., Ph.B., Sect. A)	Chemistry 3 French 1–3, German 1–3 (Section A) Mathematics 1 (Sect. A) Physics 1 (Lab. A.B., Ph.B., Sect. A)
French 1–3, German 1–3 (Section B) Greek 1 Physics 1 (Lab. B.S., M.P.) Physics 3 (Lect., B.S. in Chem.)	Chemistry 3 French 1–3, German 1–3 (Section B) Greek 1 Physics 1 (Lab. A.B., Ph.B., Sect. A)	Chemistry 3 French 1–3, German 1–3 (Section B) Greek 1 Physics 1 (Lab. A.B., Ph.B., Sect. A)
Chemistry 1–3 English 3 Mathematics 3 (Sect. A)	Chemistry 1–3 English 3 Mathematics 3 (Sect. A)	Chemistry 1–3 English 3 Mathematics 3 (Sect. A)
Chemistry 1–3 Latin 3 Mathematics 3 (Sect. B)	Chemistry 1–3 Latin 3 Mathematics 3 (Sect. B)	Chemistry 1–3 Latin 3 Mathematics 3 (Sect. B)
Biology 3–5 English 1 (Ph.B., B.S. in Chem.) Graphics 1 (B.S., taking Physics)	Biology 3–5 Graphics 1 (B.S., taking Physics)	
Biology 3–5 Graphics 1 (B.S., taking Physics) Greek 3 Latin 1 (Sect. B of Ph.B.) Physics 1 (Lab. A.B., Ph.B., Sect. C) Physics 3 (Lab. B.S. in Chem.)	Bible 1 Biology 3–5 Graphics 1 (B.S., taking Physics) Physics 1 (Lab. A.B., Ph.B., Sect. C) Physics 3 (Lab. B.S. in Chem.)	
Biology 3–5 Graphics 1 (B.S., taking Physics) Physics 1 (Lab. A.B., Ph.B., Sect. C) Physics 3 (Lab. B.S. in Chem.)	Biology 3–5 Graphics 1 (B.S., taking Physics) Physics 1 (Lab. A.B., Ph.B., Sect. C) Physics 3 (Lab. B.S. in Chem.)	

SCHEDULE FOR JUNIOR AND SENIOR CLASSES

HR.	MONDAY	TUESDAY	WEDNESDAY
8	Chemistry 15, 23 English 11, 12 Geology 11 German 21. 22 History 7, 8 Spanish 1, 2	Chemistry 15, 23 English 11, 12 Geology 11 German 21, 22 History 7, 8 Spanish 1, 2	Chemistry 9 Chemistry 23 English 11, 12 German 21, 22 History 7, 8 Spanish 1, 2
9	Chemistry 7, 23 Economics 3 Economics 4 English 7, 8 French 23, 24 Geology 1, 2 Greek 15	Chemistry 7, 23 Economics 3 Economics 4 English 7, 8 French 23, 24 Geology 1, 2 Greek 15	Chemistry 15, 23 Economics 4 English 7, 8 French 23, 24 Geology 1, 2 Greek 15
10	Chemistry 23, 27 Chemistry 31 Geology 7 Government 2, 3 Latin 7, 8 Physics 7 Physics 11	Chemistry 23, 27 Chemistry 31 Geology 7 Government 2, 3 Latin 7, 8 Physics 7 Physics 11	Chemistry 15, 23 Chemistry 31 Government 2, 3 Latin 7, 8 Physics 7 Physics 11
11	Chemistry 27 Chemistry 31 English 17, 18 Geology 7 Greek 7, 8 History 2, 3 Mathematics 5, 6 Spanish 3, 4	Chemistry 27 Chemistry 31 English 17, 18 Geology 7 Greek 7, 8 History 2, 3 Mathematics 5, 6 Physics 7, 11 Spanish 3, 4	Chemistry 15, 23 Chemistry 31 English 17, 18 Greek 7, 8 History 2, 3 Mathematics 5, 6 Physics 7, 11 Spanish 3, 4
1	Bible 9, 10, 11, 12, 13, 14 Biology 1, 2, 3 Geology 13 Metallurgy 11	Biology 1, 2, 3 Education 1, 2 English 20 Geology 13 Greek 5, 6 Mathematics 13, 14 Metallurgy 11	Public Lectures and student organization meetings
2	Bible 15, 18 Biology 1, 2, 3 Geology 13 Metallurgy 11	Biology 1, 2, 3 Geology 13 Government 5 Mathematics 11, 12 Metallurgy 11 Philosophy 5	Bible 9, 10, 11, 12, 13, 14 Bible 15, 18
3	Biology 1, 2, 3 Geology 13 Metallurgy 11	Biology 1, 2, 3 Geology 13 Metallurgy 11	

ARTS AND SCIENCE COURSES, 1ST AND 2ND TERMS, 1915–16

THURSDAY	FRIDAY	SATURDAY
Chemistry 9 Chemistry 17 English 9, 10 Geology 5, 6 Law 9, 10 Philosophy 7	Chemistry 5 Chemistry 17 Chemistry 29, 33 English 9, 10 Geology 5, 6 Law 9, 10 Philosophy 7	Chemistry 17 Chemistry 29, 33 English 9, 10 Geology 5, 6 Law 9, 10 Philosophy 7
Chemistry 21 Economics 2 Geology 5, 6 Latin 5, 6 Mathematics 9, 10	Chemistry 13 Chemistry 19 Chemistry 29, 33 Economics 2 Geology 5, 6 Latin 5, 6 Mathematics 9, 10	Chemistry 25 Chemistry 29, 33 Economics 2 Geology 5, 6 Latin 5, 6 Mathematics 9, 10
Amer. Hist. 4, 5 Biology 7 Chemistry 21 Chemistry 31 English 5, 6 French 21, 22 Geology 3, 4 Greek 11, 12 Physics 9 Psychology 2	Amer. Hist. 4, 5 Biology 7 Chemistry 25 Chemistry 31 English 5, 6 French 21, 22 Geology 3, 4 Greek 11, 12 Physics 9 Psychology 2	Amer. Hist. 4, 5 Biology 7 Chemistry 25 Chemistry 31 English 5, 6 French 21, 22 Geology 3, 4 Greek 11, 12 Physics 9 Psychology 2
Biology 7 Chemistry 21 Chemistry 31 English 15, 16 Geology 3 Greek 17 Italian 1, 2 Philosophy 3, 4 Physics 9 Sociology 1, 2	Biology 7 Chemistry 25 Chemistry 31 English 15, 16 Geology 3 Greek 17 Italian 1, 2 Philosophy 3, 4 Physics 9 Sociology 1, 2	Biology 7 Chemistry 25 Chemistry 31 English 15, 16 Geology 3 Greek 17 Italian 1, 2 Philosophy 3, 4 Physics 9 Sociology 1, 2
Biology 1, 4, 5, 6 Chemistry 5 Chemistry 21 Education 1, 2 English 20 Greek 5, 6 Mathematics 13, 14	Biology 1, 4, 5, 6 Chemistry 5 Chemistry 23 Education 1, 2 English 20 Greek 5, 6 Mathematics 13, 14	
Biology 1, 4, 5, 6 Chemistry 5 Chemistry 21 Government 5 Mathematics 11, 12 Philosophy 5, 6	Biology 1, 4, 5, 6 Chemistry 5 Chemistry 23 Government 5 Mathematics 11, 12 Philosophy 5, 6	
Biology 1, 4, 5, 6 Chemistry 5 Chemistry 21	Biology 1, 4, 5, 6 Chemistry 5 Chemistry 23	

SCHEDULE FOR FRESHMAN AND SOPHOMORE CLASSES

HR.	MONDAY	TUESDAY	WEDNESDAY
8	French 1 (Sect. B) Mathematics 3 (Sect. A) Physics 3 (Lab. Min., Elec., Mech.)	French 1 (Sect. B) Mathematics 3 (Sect. A) Physics 3 (Lab. Min., Elec., Mech.)	French 1 (Sect. B) Mathematics 3 (Sect. A) Physics 3 (Quiz)
9	French 1 (Sect. A) Mathematics 3 (Sect. B) Physics 3 (Lab. Min., Elec., Mech.)	French 1 (Sect. A) Mathematics 3 (Sect. B) Physics 3 (Lab. Min., Elec., Mech.)	French 1 (Sect. A) Mathematics 3 (Sect. B) Physics 3 (Lecture)
10	Chemistry 1 Mathematics 7	Chemistry 1 Mathematics 7	Chemistry 1 Mathematics 7
11	Chemistry 1	Chemistry 1 Graphics 3 (Min., Elec., Mech.)	Chemistry 1 Graphics 3 (Civ.)
1	Civ. Eng. 3 (Sect. B) Graphics 1 (Sect. A) Mech. Eng. 1 (Elec.)	Civ. Eng. 3 (Sect. B) Graphics 1 (Sect. A) Mech. Eng. 1 (Elec.)	Public Lectures and student organization meetings
2	Civ. Eng. 3 (Sect. B) Graphics 1 (Sect. A) Mech. Eng. 1 (Elec.) Physics 3 (Lab., Sect. A, Civ.)	Civ. Eng. 3 (Sect. B) Graphics 1 (Sect. A) Mech. Eng. 1 (Elec.) Physics 3 (Lab., Sect. A, Civ.)	Bible 1,3
3	Civ. Eng. 3 (Sect. B) Graphics 1 (Sect. A) Mech. Eng. 1 (Elec.) Physics 3 (Lab., Sect. A, Civ.)	Civ. Eng. 3 (Sect. B) Graphics 1 (Sect. A) Mech. Eng. 1 (Elec.) Physics 3 (Lab., Sect. A, Civ.)	

TECHNICAL COURSES, 1ST TERM, 1915–16

THURSDAY	FRIDAY	SATURDAY
French 1, 3, German 1, 3 Physics 3 (Quiz)	Chemistry 3 French 1, 3, German 1, 3 Mech. Eng. 3 (Civ.) Physics 5	Chemistry 3 French 1, 3, German 1, 3 Mech. Eng. 3 (Civ.) Physics 5
English 1 Physics 3 (Lecture)	Chemistry 3 English 1 Mech. Eng. 3 (Civ.) Physics 5	Chemistry 3 English 1 Mech. Eng. 3 (Civ.) Physics 5
English 3 German 3 (Sect. B) Mathematics 3 (Sect. A)	English 3 German 3 (Sect. B) Mathematics 3 (Sect. A)	English 3 German 3 (Sect. B) Mathematics 3 (Sect. A)
German 3 (Sect. A) Graphics 3 (Min., Elec., Mech.) Mathematics 3 (Sect. B)	German 3 (Sect. A) Graphics 3 (Civ.) Mathematics 3 (Sect. B)	German 3 (Sect. A) Graphics 3 Mathematics 3 (Sect. B)
Civ. Eng. 3 (Sect. A) Graphics 1 (Sect. B) Mech. Eng. 1 (Mech.)	Civ. Eng. 3 (Sect. A) Graphics 1 (Sect. B) Mech. Eng. 1 (Mech.)	
Civ. Eng. 3 (Sect. A) Graphics 1 (Sect. B) Mech. Eng. 1 (Mech.) Physics 3 (Lab., Sect. B, Civ.)	Civ. Eng. 3 (Sect. A) Graphics 1 (Sect. B) Mech. Eng. 1 (Mech.) Physics 3 (Lab., Sect. B, Civ.)	
Civ. Eng. 3 (Sect. A) Graphics 1 (Sect. B) Mech. Eng. 1 (Mech.) Physics 3 (Lab., Sect. B, Civ.)	Civ. Eng. 3 (Sect. A) Graphics 1 (Sect. B) Mech. Eng. 1 (Mech.) Physics 3 (Lab., Sect. B, Civ.)	

SCHEDULE FOR JUNIOR AND SENIOR CLASSES

HR.	MONDAY	TUESDAY	WEDNESDAY
8	Civ. Eng. 7 Civ. Eng. 17 Geology 11 Mech. Eng. 5	Civ. Eng. 7 Civ. Eng. 17 Geology 11 Mech. Eng. 5	Civ. Eng. 7 Civ. Eng. 19 Mech. Eng. 5
9	Civ. Eng. 5 (Sect. A) Economics 3 Mech. Eng. 5, 7	Civ. Eng. 5 (Sect. B) Economics 3 Mech. Eng. 5, 7	Civ. Eng. 15 Elec. Eng. 7 Mech. Eng. 5, 7
10	Civ. Eng. 15*a* Geology 7 Min. Eng. 3	Civ. Eng. 15 Elec. Eng. 5 Elec. Eng. 11 Geology 7 Min. Eng. 3	Civ. Eng. 11 Civ. Eng. 15 Elec. Eng. 5 Elec. Eng. 7
11	Civ. Eng. 15*a* Elec. Eng. 5, 11 Geology 7	Civ. Eng. 15 Elec. Eng. 5, 11 Geology 7	Civ. Eng. 15 Elec. Eng. 5 Elec. Eng. 7
1	Chem. 11 Civ. Eng. 13 Civ. Eng. 25 (Mech.) Civ. Eng. 27 (Civ. C) Elec. Eng. 3 (Civ. A, B) Mech. Eng. 1 (Elec.) Min. Eng. 1	Chem. 11 Civ. Eng. 13 Civ. Eng. 25 (Civ. A, B) Civ. Eng. 27 (Civ. D) Elec. Eng. 3 (Mech.) Mech. Eng. 1 (Elec.) Mech. Eng. 9 (Elec.) Min. Eng. 1	Public Lectures and student organization meetings
2	Chem. 11 Civ. Eng. 13 Civ. Eng. 25 (Mech.) Civ. Eng. 27 (Civ. C) Elec. Eng. 3 (Civ. A, B) Elec. Eng. 13 Mech. Eng. 1 (Elec.) Min. Eng. 1	Chem. 11 Civ. Eng. 13 Civ. Eng. 25 (Civ. A, B) Civ. Eng. 27 (Civ. D) Elec. Eng. 3 (Mech.) Elec. Eng. 13 Mech. Eng. 1 (Elec.) Mech. Eng. 9 Min. Eng. 1	Bible 9 Bible 15
3	Chem. 11 Civ. Eng. 13 Civ Eng. 25 (Mech.) Civ. Eng. 27 (Civ. C) Elec. Eng. 3 (Civ. A, B) Elec. Eng. 13 Mech. Eng. 1 (Elec.) Min. Eng. 1	Chem. 11 Civ. Eng. 13 Civ. Eng. 25 (Civ. A, B) Civ. Eng. 27 (Civ. D) Elec. Eng. 3 (Mech.) Elec. Eng. 13 Mech. Eng. 1 (Elec.) Mech. Eng. 9 Min. Eng. 1	

TECHNICAL COURSES, 1ST TERM, 1915–16

THURSDAY	FRIDAY	SATURDAY
Civ. Eng. 9 Civ. Eng. 19 Elective	Civ. Eng. 9 Civ. Eng. 21 Elective	Civ. Eng. 9 Civ. Eng. 21 Elective
Chem. 21 Civ. Eng. 15 Elec. Eng. 5 Elec. Eng. 7	Civ. Eng. 15 Civ. Eng. 19 Elec. Eng. 3 Min. Eng. 5	Civ. Eng. 15 Civ. Eng. 19 Min. Eng. 5
Biology 7 Chem. 21 Civ. Eng. 11 Civ. Eng. 15 Elec. Eng. 7 Elec. Eng. 11	Biology 7 Civ. Eng. 5 Civ. Eng. 15 Elec. Eng. 3 Elec. Eng. 11	Biology 7 Civ. Eng. 5 Civ. Eng. 15*a* Elec. Eng. 21
Biology 7 Chem. 21 Civ. Eng. 15 Elec. Eng. 5 Elec. Eng. 7	Biology 7 Civ. Eng. 5 Civ. Eng. 15 Elec. Eng. 3 Elec. Eng. 11	Biology 7 Civ. Eng. 5 Civ. Eng. 15*a* Elec. Eng. 21
Chem. 21 Civ. Eng. 25 (Civ. C, D) Civ. Eng. 27 (Civ. A) Elec. Eng. 3 (Elec.) Geology 9 Mech. Eng. 1 (Mech.) Mech. Eng. 9	Civ. Eng. 25 (Elec.) Civ. Eng. 27 (Civ. B) Elec. Eng. 3 (Civ. C, D) Geology 9 Mech. Eng. 1 (Mech.) Mech. Eng. 9	
Chem. 21 Civ. Eng. 25 (Civ. C, D) Civ. Eng. 27 (Civ. A) Elec. Eng. 3 (Elec.) Geology 9 Mech. Eng. 1 (Mech.) Mech. Eng. 9 Elec. Eng. 11	Civ. Eng. 25 (Elec.) Civ. Eng. 27 (Civ. B) Elec. Eng. 3 (Civ. C, D) Geology 9 Mech. Eng. 1 (Mech.) Mech. Eng. 9	
Chem. 21 Civ. Eng. 25 (Civ. C, D) Civ. Eng. 27 (Civ. A) Elec. Eng. 3 (Elec.) Geology 9 Mech. Eng. 1 (Mech.) Mech. Eng. 9	Civ. Eng. 25 (Elec.) Civ. Eng. 27 (Civ. B) Elec. Eng. 3 (Civ. C, D) Geology 9 Mech. Eng. 1 (Mech.) Mech. Eng. 9	

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SUMMARY OF ENROLLMENT, 1914–1915

Courses	Seniors	Juniors	Sophomores	Freshmen	Total
Graduates	...	...	...	...	16
Classical	9	8	5	4	26
Latin Scientific	33	34	39	37	143
Latin Scientific. Electing Greek	...	8	13	19	40
General Scientific	10	14	9	50	83
Civil Engineering	15	27	23	33	98
Electrical Engineering	13	14	13	12	52
Mining Engineering	4	2	1	1	8
Mechanical Engineering	5	10	12	14	41
Chemical	14	19	10	25	68
Totals	103	136	125	195	575

CLASSIFICATION BY RESIDENCE

Arkansas	1
California	2
Connecticut	5
Delaware	5
Dist. of Columbia	22
Illinois	2
Indiana	2
Iowa	1
Kansas	1
Maryland	4
Massachusetts	2
New Hampshire	1
New Jersey	148
New York	39
Ohio	3
Pennsylvania	311
Tennessee	1
Texas	1
Vermont	1
Virginia	1
Wisconsin	1
Canada	2
China	1
Greece	1
South America	1

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